

C2 10-14: (Twice Amended) An optical system having a diffractive optical element as manufactured in accordance with [a] the method [as] recited in Claim 9.

REMARKS

In view of the above amendments and the following remarks, Applicants request favorable reconsideration and allowance of the above-identified application.

Claims 1-14 remain pending in this application, with Claims 1-4, 7, 8 and 11 being independent. By this Amendment, Applicants have amended Claims 1-12 and 14.

The drawings stand objected to because particular drawings are not labeled as "Prior Art." Attached is a Request for Approval to Amend the Drawings in which Applicants propose to label those drawings as "Prior Art."

Claims 1-14 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Applicants have amended the claims to overcome that rejection. Accordingly, Applicants request withdrawal of the rejection under 35 U.S.C. § 112, second paragraph.

Claims 1-4, 6-9, 13 and 14 stand rejected under 35 U.S.C. § 102(e) over U.S. Patent No. 5,847,877 (Imamura, et al.). Claim 5 stands rejected under 35 U.S.C. § 103 over the Imamura, et al. patent. Claims 10-12 stand rejected under 35 U.S.C. § 103 over the Imamura, et al. patent in view of U.S.

Patent No. 5,629,804 (Tomono). Applicants traverse these rejections.

As recited in independent Claims 1-4, 7 and 8, Applicants' invention is generally directed to a diffractive optical element having a diffraction grating portion which includes first and second diffraction gratings. The first diffraction grating and an alignment pattern are integrally formed on a first substrate and the second diffraction grating and an alignment pattern are integrally formed on a second substrate. Also, the first and second substrates are accumulated with a space therebetween, with the first and second diffraction gratings being positioned so that the alignment pattern on the first substrate engages the alignment pattern on the second substrate.

As recited in independent Claim 11, Applicants' invention is directed to a method of manufacturing a diffractive optical element. The method includes a step of forming, upon a substrate, a first diffraction grating pattern and an alignment pattern. The method also includes a step of preparing a mold having (i) an alignment pattern to be engaged with the alignment pattern formed on the substrate, and (ii) a second diffraction grating pattern. In addition, the method includes a step of positioning the first diffraction grating pattern, on the substrate, and the second diffraction grating pattern to be spaced with respect to each other by engaging the

alignment pattern of the substrate with the alignment pattern of the mold.

The Imamura, et al. patent is directed to a diffractive optical element having two different layers made of materials having different refractive indices. The Office Action states that the optical element described in that patent has protrusions and recesses on a diffraction structure that engage each other. However, Applicants submit that the Imamura, et al. patent does not describe or show an optical element formed of first and second substrates having a space therebetween and each including an alignment pattern engaging the alignment pattern of the other substrate.

The Tomono patent is directed to a diffraction grating constituted by a substrate and a resin layer. The Office Action merely cites this patent to show the use of a mold to form an optical element. However, Applicants submit that the Tomono patent fails to remedy the deficiencies noted above with respect to the Imamura, et al. patent.

Accordingly, Applicants submit that the Imamura, et al. and Tomono patents, taken alone or in combination, fail to disclose or suggest at least the features of a first diffraction grating and an alignment pattern integrally formed on a first substrate and a second diffraction grating and an alignment pattern integrally formed on a second substrate, the first and second substrates being accumulated with a space

therebetween and the first and second diffraction gratings being positioned so that the alignment pattern on the first substrate engages the alignment pattern on the second substrate, as recited in independent Claim 1-4, 7 and 8.

Applicants also submit that the Imamura, et al. and Tomono patents, taken alone or in combination, fail to disclose or suggest at least the steps of forming, upon a substrate, a first diffraction grating pattern and an alignment pattern, preparing a mold having (i) an alignment pattern to be engaged with the alignment pattern formed on the substrate, and (ii) a second diffraction grating pattern, and positioning the first diffraction grating pattern on the substrate and the second diffraction grating pattern to be spaced with respect to each other by engaging the alignment pattern of the substrate with the alignment pattern of the mold, as recited in independent Claim 11.

For the foregoing reasons, Applicants respectfully submit that the independent claims are distinguishable over the cited documents, whether those documents are taken alone or in combination, and request withdrawal of the rejections under 35 U.S.C. §§ 102 and 103.


The remaining claims in this application are dependent claims which depend from the independent claims discussed above, and thus are patentable over the documents of record for the reasons noted above with respect to the

independent claims. In addition, each recites features still further distinguishing them from the applied documents. Applicants request favorable and independent consideration thereof.

Applicants submit that all outstanding matters have been attended to in this application, and request a notice of allowance.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our address given below.

Respectfully submitted,



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